

REMARKS

Claims 1, 3, 4 and 6 through 12 are pending in this Application. Claims 1 and 4 have been amended, claims 2 and 5 cancelled, and new claims 8 through 12 added. Care has been exercised to avoid the introduction of new matter. Indeed, adequate descriptive support for the present Amendment should be apparent throughout the originally filed disclosure noting, for example, the original claims, that the limitations of claims 2 and 5 have been incorporated into claims 1 and 4, respectively, and that claim 4 is presented in independent form. Applicants submit that the present Amendment does not generate any new matter issue.

Claims 1 through 7 were rejected under 35 U.S.C. § 103 for obviousness predicated upon Komiyama in view of Marie.

In the statement of the rejection the Examiner concluded that one having ordinary skill in the art would have been motivated to modify the single half-wave plate disclosed by Komiyama to comprise first and second half-wave plates in view of Marie. This rejection is traversed.

There are significant differences between the claimed inventions and the applied prior art that undermine the obviousness conclusion under 35 U.S.C. § 103. Specifically, independent **claim 1** is directed to an optical signal processor comprising first and second diffraction grating devices. The first diffraction grating device has a diffracting surface arranged on a first reference plane. The second diffraction grating device has a diffraction surface arranged on a second reference plane apart from and parallel to the first reference plane. Therefore, incident angles β_2 (λ) to the second diffraction grating device 122 becomes substantially equal to diffraction angles β_2 (λ) by the first diffraction grating device 121. Adverting to Fig. 1 of the present Application, incident angles β_2 (λ_1), β_2 (λ_2) and β_2 (λ_3) to the second diffraction grating device 122 become

substantially equal to diffraction angles $\beta_2(\lambda_1)$, $\beta_2(\lambda_2)$ and $\beta_2(\lambda_3)$ by the first diffraction grating device 121, respectively. For the Examiner's convenience Applicants have indicated the incident and diffraction angles on Fig. 1 in Appendix A hereto.

As one having ordinary skill in the art would have recognized, diffraction efficiency depends upon the incident angle of light. In order to equalize the diffraction efficiencies of the first and second diffraction grating devices 121, 122, for all wavelengths, an incident angle to the second diffraction grating device 122 should be substantially equal to a diffraction angle by the first diffraction grating device 121 for all wavelengths. Claim 1 specifies that the incident angle and the diffraction angle becomes substantially equal for all wavelengths. Therefore, claim 1 requires that the diffraction efficiencies of the first and second diffraction grating devices 121, 122, become substantially equal for all wavelengths. Accordingly, the dependence on polarization is substantially resolved for all wavelengths. No such structure or advantage can be found in either of the applied references.

Specifically, in Komiyama's optical signal processor, an incident angle $\gamma_2(\lambda)$ to the second diffraction grating device (lower portion of 1a) is completely **different from** a diffraction angle $\alpha_1(\lambda)$ by the first diffraction grating device (upper portion of 1a). Therefore, the diffraction efficiency which one polarization of light can gain by the first diffraction is **different from** that which the other polarization of light can gain by the second diffraction for some wavelengths. Accordingly, in Komiyama's optical signal processor the dependence on polarization remains for some wavelengths.

Moreover, in Komiyama's optical signal processor, incident angles $\gamma_2(\lambda)$ to the second diffraction grating device are completely different from diffraction angles $\alpha_1(\lambda)$ by the first diffraction grating device, as should be apparent from Fig. B1 in Appendix B. Further, incident

angles $\gamma_2(\lambda_1)$ and $\gamma_2(\lambda_3)$ to the second diffraction grating device are different from incident angles $\gamma_1(\lambda)$ to the first diffraction grating device as apparent from Fig. B2 in Appendix B. Accordingly, in Kimoyama's optical signal processor the dependence on polarization remains for wavelengths of λ_1 and λ_3 .

As previously noted, the diffraction surfaces of the first and second diffraction grating devices of the optical signal processor defined in independent claim 1 are parallel to each other. Therefore, the dependence on polarization is substantially resolved for all wavelengths. As also discussed above, this feature of the claimed invention is neither disclosed nor suggested by Komiyama. Marie does not cure the argued deficiencies of Komiyama. Accordingly, even if Komiyama's optical signal processor is modified as suggested by the Examiner, and Applicants do not agree that the requisite fact-based motivation has been established, the invention defined in independent claim 1 would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 USPQ2d 1434 (Fed. Cir. 1988). Moreover, there is no apparent factual basis upon which to predicate the conclusion that one having ordinary skill in the art would have gone one step further and modified whatever device can be said to have been reasonably suggested by the disclosures of Komiyama and Marie to arrive at the claimed invention absent, of course, improper reliance upon Applicants' disclosure. *Panduit Corp. v. Dennison Mfg. Co.*, 774 F.2d 1082, 227 USPQ 337 (Fed. Cir. 1985).

The optical signal processor defined in independent **claim 4** comprises a first diffraction grating device and a second diffraction grating device. The first diffraction grating device has a diffracting surface arranged on a first reference plane. The second diffraction grating device has a diffracting surface arranged on the first reference plane. The mirror has a reflecting surface

arranged on a second reference plane apart from and parallel to the first reference plane.

Therefore, incident angles $\beta_2 (\lambda)$ to the second diffraction grating device 220 become substantially equal to the diffraction angles $\beta_2 (\lambda)$ by the first diffraction grating device 220. In this respect the Examiner's attention is invited to Fig. 6 in Appendix A.

Since diffracting surfaces of the first and second diffraction grating devices and the reflecting surface of the mirror are **parallel** to each other, as recited in **claim 4**, the dependence on polarization is substantially resolved for all wavelengths. No such structure and advantage is disclosed or suggested by the applied prior art, including Komiyama. Marie does not cure the argued deficiencies of Komiyama. Accordingly, even if the applied references are combined as suggested by the Examiner, and again Applicants do not agree that the requisite fact-based motivation has been established, the claimed invention would not result. *Uniroyal, Inc. v. Rudkin-Wiley Corp., supra*. Moreover, there is no apparent factual basis upon which to predicate the conclusion that one having ordinary skill in the art would have been realistically led to modify whatever device can be said to have been reasonably suggested by the disclosures of the applied references to form diffracting surfaces of the first and second diffraction grating devices and the reflecting surface of the mirror parallel to each other absent, of course, improper reliance upon Applicants' disclosure. *Panduit Corp. v. Dennison Mfg. Co., supra*.

Based upon the foregoing Applicants submit that a *prima facie* basis to deny patentability to the inventions defined in independent claims 1 and 4, and the claims dependent thereon, has not been established for lack of the requisite factual basis and want of the requisite realistic motivation. Applicants, therefore, submit that the imposed rejection of claims 1 through 7 under

35 U.S.C. § 103 for obviousness predicated upon Komiyama in view of Marie is not factually or legally viable and, hence, solicit withdrawal thereof.

New claims 8 through 12.

New claims 8 through 12 are free of the applied prior art by virtue of their dependence upon either independent claim 1 or independent claim 4, the separate patentability of which claims has been argued *supra*. Accordingly, claims 8 through 12 are free of the applied prior art.

Based upon the foregoing it should be apparent that the imposed rejection has been overcome and that all pending claims are in condition for immediate allowance. Favorable consideration is, therefore, solicited.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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